

Literature Cited

- CLARKE, J. F. GATES, 1978. Neotropical Microlepidoptera, XXI: New Genera and Species of Oecophoridae from Chile. Smithsonian Contributions to Zoology, No. 273: 1-80, figs. 1-54, pls. 1-6.
- MEYRICK, E., 1922. Lepidoptera - Heterocera: Family Oecophoridae. In Wytzman, Genera Insectorum 180: 1-224, 6 plates (color).
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Notes

A Recondite Breeding Site for the Monarch (*Danaus plexippus*, Danaidae) in the Montane Sierra Nevada

The Monarch butterfly (*Danaus plexippus* L.) traverses enormous distances in its annual migrations. These movements must carry it through or over extensive areas of habitat unfavorable for breeding, such as continuous forest and high-altitude montane regions, but data concerning its behavior in crossing such potential barriers are scanty. The Monarch as a breeder is characteristically associated with disturbed habitats in which species of milkweeds (Asclepiadaceae) behave as ruderals or range weeds, and little has been documented on its ability to find native milkweeds in their natural habitats, especially in mountainous regions. It seems certain that disturbance by man and overgrazing by his livestock have made host-finding easier for female Monarchs; in the pristine state stands of the hosts must have been much more scattered in the west, at least.

The Asclepiadaceae do not usually reach high elevations in California. *Asclepias speciosa* Torrey reaches 3030 m in the Convict Creek Basin on the east slope of the Sierra Nevada, but records above 2000 m are generally rare. The Monarch crosses the mountains in its seasonal migrations (it is observed as a migrant in Donner Pass in both spring and fall but does not have any host plants there, at 2100 m). Shapiro, Palm, and Wcislo (1981, J. Res. Lepid. 18(2): 92) found it breeding on *A. cordifolia* (Benth.) Jeps. above 2000 m on Packer's Peak; this is a very isolated stand of less than a dozen shoots, and required a traverse of at least 1.5 km of continuous forest from the nearest road. A much more isolated stand colonized by Monarchs was found on 18 July 1981 in the northern Sierra Nevada by Mr. William Overton and the author. This stand covers more than 1 ha on both sides of USFS road 19N14, about 1.5 km NNE of English Mountain Ranch, Sierra County, near Damfine Spring (ca. 1940 m). *Asclepias speciosa* is the most conspicuous plant, and on the date of our visit was in full bloom. About 30 adult and 50 larval Monarchs were observed. The site is located in R13E, T18N, mapped on the USFS "Foresthill and Big Bend Districts, Tahoe National Forest" sheet (1966) and in the NE corner of the USGS Emigrant Gap topographic 15' quadrangle. It is accessible from the south by USFS road 18N18 from Highway 20 and from the north (Henness Pass) by road 19N03.

This breeding site is surrounded by dense, continuous coniferous forest, completely free of Asclepiadaceae, for at least 9 km in all directions, except for a

small and equally isolated boggy meadow at English Mountain Ranch (no milkweeds). The nearest known Asclepiads are about six plants of *A. cordifolia* at 1700 m near the Bear River on USFS 18N18, an airline distance of 17.5 km from Damfine Spring. There are few flowers and almost no butterflies along these roads, except at English Mountain Meadow, where no Monarchs were seen. In fact, no Monarchs were seen from the junction of 18N18 with Highway 20, via 19N14 and 19N03 to Henness Pass Road to Highway 89, a 65 km trip, except at Damfine Spring. The only other butterflies seen at Damfine Spring were male *Speyeria zereene* ssp., despite the superabundant nectar resources.

There is no question of the Monarch's ability to traverse the distances from its more usual agricultural-ruderal breeding sites to Damfine Spring, but what is striking is that it was able to find and colonize so remote an island of milkweed in a sea of conifers. One may be forgiven for speculating that the probability of such sites being found by parasites of the Monarch is much lower than more conventional ones, and that they may contribute disproportionately to seasonal reproduction. We will watch this site in future years to determine whether it is routinely used and whether parasitism is high or low compared to more open, weedy sites.

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Mate-Locating Behavior of *Gnophaela latipennis vermiculata* G. & R. (Pericopidae)

Gnophaela latipennis vermiculata is one of the most conspicuous day-flying moths in the Rocky Mountains. It is figured by W. J. Holland (1903 reprinted 1968. The Moth Book. Dover Publ., N.Y.). Adults are typically found in moist valley bottoms in the Canadian Zone. The strangest feature of the moths is that nearly half of the adults seen are copulating, on yellow (sometimes white) flowered Compositae growing in meadows or near streams. In their frequency of copulation they rival only the bluish *Epicauta* beetles (Meloidae), popularly termed love bugs, that mate and feed on various legumes in Colorado. The moths are nearly absent in the morning, and start to patrol the valley bottoms starting about 1300 (24-hour standard time), and patrol conspicuously the rest of the afternoon. I found many copulating pairs at 1310, 1350, 1400, 1420 and 1830, usually resting on the composite flowers. Adults sip nectar from the composites also. Adults are probably distasteful to most predators, because they fly slowly and are very conspicuous, I have collected ssp. *vermiculata* at Taos Ski Basin, 10400', Taos County, New Mexico, August 22-23, 1979; Toll Ranch, Gilpin County, Colorado, July 28, 1977; 3 miles NW Nederland, Boulder County, Colorado, July 24, 1977; Jim Creek, Grand County, Colorado, August 9, 1977; Diamond Peak, Moffat County, Colorado, July 8, 1972; Willow Springs Guard Station, Sublette County, Wyoming, August 8, 1980; and ssp. *latipennis* Bdv. at Cedar Pass, Modoc County, California, August 4, 1974; and 2 miles W. Old Mill Campground, Colusa County, California, June 8, 1974 (mating was not observed in ssp. *latipennis*).

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